

**UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION**

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Phosphate)

Fatal Machinery Accident
September 27, 2005

Mosaic Phosphates Company
Fort Green Mine
Mulberry, Polk County, Florida
Mine I.D. No. 08-00768

Investigators

Thomas P. Clarkson
Supervisory Mine Safety and Health Inspector

Larry D. Smith
Mine Safety and Health Inspector

Emmette C. Turner
Mine Safety and Health Inspector

James B. Pfeifer, PE
Civil Engineer

Stanley T. Schaeffer, Jr.
Civil Engineer

Originating Office
Mine Safety and Health Administration
Southeast District
135 Gemini Circle, Suite 212; Birmingham, AL 35209
Michael A. Davis, District Manager



OVERVIEW

John L. Brinson, dozer operator, age 60, was fatally injured on September 27, 2005, when the dozer he was operating slid into a water filled pit. The dozer was pushing material at the edge of the pit to construct a ramp for a pump when the ground underneath it failed.

The accident occurred because procedures were not established to ensure the material used to construct the ramp were adequate. The ground was not constructed of materials capable of supporting the weight of the dozer.

GENERAL INFORMATION

Fort Green Mine, a phosphate operation, owned and operated by Mosaic Phosphates Company, was located five miles south of Highway 630 on Highway 37 in Bradley, Polk County, Florida. The principal operating official was Charles L. Morris, facility manager. The mine normally operated three eight-hour shifts a day, seven days a week. Total employment was 290 persons.

The last regular inspection at this operation was completed on September 29, 2005.

DESCRIPTION OF ACCIDENT

On the day of the accident, John L. Brinson (victim) reported to work at 7:00 a.m., his normal starting time. Brinson and his co-workers met with Darrell Colding, float crew supervisor, and received work assignments for that day. Colding told Brinson to go to the south side of the old no. 16 cut area and construct a ramp into the water so a pump could be placed there.

Brinson traveled on the dozer to the area where he was to construct the ramp. Colding arrived shortly afterwards and told Brinson that his work looked satisfactory. Brinson told Colding that he would finish the task in a few minutes and Colding left the area.

About 8:45 a.m., Tony McVay, float foreman, arrived at the site and radioed Colding to ask if someone was operating a dozer in the old no. 16 cut area, but Colding did not respond. Jesse Steel, assistant mine superintendent, heard McVay's radio message and reported that a dozer was being operated in that area. McVay told Steel that he saw tracks leading into the water and air bubbles coming from the water, but he did not see a dozer. Colding responded that Brinson was operating a dozer in that area. McVay told Colding it appeared that the dozer was in the water and asked him to summon help.

McVay entered the water and swam toward the dozer. He found the top of the dozer was approximately four to five feet under water. McVay located the victim, removed him from the cab of the dozer, and brought him to the shore. When Colding arrived, McVay told him to call for emergency medical assistance because Brinson was not responsive. The float crew arrived and began cardiopulmonary resuscitation. Brinson was transported to a local hospital where he was pronounced dead. Death was attributed to drowning.

INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident at 9:15 a.m. on September 27, 2005, by a telephone call from Larry Rials, senior safety specialist, to Emmette C. Turner, mine safety and health inspector. An investigation was started the same day. An order was issued pursuant to Section 103(k) of the Mine Act to ensure the safety of the miners. MSHA's

accident investigation team traveled to the mine, made a physical inspection of the accident scene, interviewed employees, and reviewed conditions and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management, employees, and the miners' representative.

DISCUSSION

Location of the Accident

The accident occurred at a water filled pit located south of the No. 16 Dragline. The pit was in an area that had been mined previously and was known as the HC-10 (Harsh Creek) Cut or as the old no. 16 cut.

The water filled pit where the accident occurred was about five acres in size and generally circular shaped with several peninsulas located on the eastern and southwestern sides. The water in the pit was reportedly 30-40 feet deep.

A berm, approximately 7.0 to 7.5 feet high, had been placed around the northern side of the pit. Based on laboratory test results provided by the company, the berm material was classified as fine sand with a trace amount of silt (Unified Soil Classification System). The dozer pushed about 110 cubic yards of the berm into the pit.

The pit was previously mined to a depth of approximately 60 feet below the original ground surface. A strip of land 150 feet wide separated the water filled pit from the pit where the No. 16 dragline was working. An access road was located on the strip of land between the pits.

The ramp that the victim was constructing was located on the northern side of the pond. Investigators observed three sets of dozer tracks on the ramp. The ramp was 27.5 feet wide and was sloped down towards the water at a grade of approximately 5 percent. Prior to failure, the ramp was approximately 52 to 55 feet long and extended into the water approximately 10 to 12 feet. The remaining portion of the ramp was approximately 42 feet long and extended past the pond side of the berm approximately 3 feet. A vertical scarp, approximately 3.5 feet-high, was observed at the end of the ramp where it met the water.

The center of the dozer, located approximately 45 feet from the edge of the scarp, was pointing downhill at an angle of 8.5° and there were no indications that it had rolled.

Dozer

The dozer involved in the accident was a 2002, Komatsu Model D155AX-5. It had a fully enclosed cab with an external roll-over protection system (ROPS) and weighed approximately 79,370 pounds. The dozer was 9 feet, 3 inches wide, 23 feet, 5 inches long, and had a blade capacity of 11.5 cubic yards. It was equipped with a seat belt.

After the dozer was extracted from the pit, investigators found the right side door was open and the ignition switch was in the off position. The joystick gear selector of the dozer's transmission was found to be in the reverse, first gear position.

No defects were found on the dozer.

Weather

The weather at the time of the accident was partly cloudy and warm with a temperature of about 85 degrees Fahrenheit. Weather conditions were not a contributing factor.

Training and Experience

John L. Brinson had 27 years mining experience, all at this mine. He had received training in accordance with 30 CFR, Part 48. Additionally, Brinson had received a 13-month equipment operator task training course.

ROOT CAUSE ANALYSIS

A root cause analysis was conducted and the following causal factors were identified:

Causal Factor: Policies, standards, and controls were inadequate and failed to ensure that the ramp was designed and constructed of materials capable of supporting the load that it would be subjected to.

Corrective Action: Management should develop and establish procedures to ensure that equipment operators and supervisors are trained to construct ramps capable of supporting the weight of the equipment operating on them. The procedures should require that miners visually inspect the ground conditions to identify hazards where ramps are constructed.

Causal Factor: No risk assessment was conducted to identify all foreseeable hazards and discuss methods to minimize the hazards associated with the construction of the ramp.

Corrective Action: Conduct a risk assessment to identify and eliminate or control any hazards. To safely construct the ramp, select equipment, such as an excavator, that can be operated a safe distance from the edge of the water.

CONCLUSION

The accident occurred because the procedures used to construct the ramp were inadequate. The ramp was not constructed of materials capable of supporting the weight of the dozer. A risk analysis, to identify all potential hazards and establish procedures to safely complete this task, was not completed prior to building this ramp.

VIOLATIONS

Order No. 3876547 was issued on September 27, 2005, under the provisions of Section 103(k) of the Mine Act:

A fatal accident occurred at this operation on September 27, 2005, when a miner was pushing material with a Komatsu 155 dozer to make a ramp for a water jack installation, when the dozer went into the water. This order is issued to ensure the safety of all persons at this operation. It prohibits all activity at the failed area until MSHA has determined that it is safe to resume normal mining operations in the area. The mine operator shall obtain prior approval from an Authorized Representative for all actions to recover and/or restore operations to the affected area.

This order was terminated on October 31, 2005. The conditions that contributed to the accident have been corrected and normal mining operations can resume.

Citation No. 6114135 was issued on November 14, 2005, under the provision of Section 104(a) of the Mine Act for a violation of 30 CFR 56.9303:

A fatal accident occurred at this operation on September 27, 2005, when a dozer was being operated to construct a ramp in the old number 16 cut area of the mine. The victim was using a portion of the berm to construct a ramp into the water filled pit to install a pump. The ramp collapsed and the dozer fell into the water. The ramp was not designed or constructed of material capable of supporting the weight it was subjected to, namely the dozer.

This citation was terminated on December 09, 2005. The mine operator has established safe operating procedures and tasked trained all equipment operators and supervisors regarding the proper constructing of ramps.

Approved by: _____
Michael A. Davis
District Manager

Date: _____

APPENDICES

Appendix A - Persons participating in the investigation

Appendix B - Elevation view of cut through berm leading to pit

Appendix C - Diagram of failure scenario

APPENDIX A

Persons Participating in the Investigation

Mosaic Phosphates Company

| | |
|---------------------|--|
| Willie C. Tims, Jr. | assistant vice president health and safety |
| Jon Heaser | safety and health superintendent |
| Larry Rials | senior safety specialist |
| Kenny Ricks | maintenance superintendent |
| Mike James | mine superintendent |
| Steve Diffey | assistant mine superintendent |
| Mike Miller | mobile equipment superintendent |
| Juan M. Garcia | miners' representative |

Linder Industrial Machinery Company

| | |
|---------------|-------------------------|
| Duayne Sharpe | general service manager |
|---------------|-------------------------|

Komatsu America Corp.

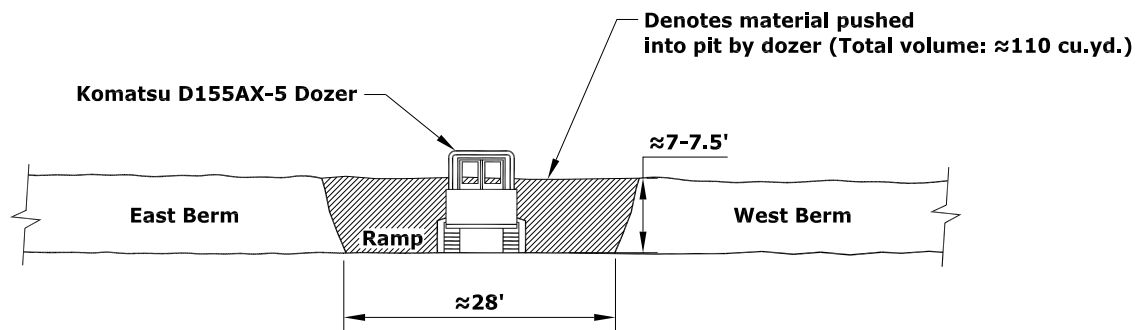
| | |
|-------------------|------------------------------|
| Alex M. Vidakovic | manager of product integrity |
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Mine Safety and Health Administration

| | |
|---------------------------|--|
| Thomas P. Clarkson | supervisory mine safety and health inspector |
| Larry D. Smith | mine safety and health inspector |
| Emmette C. Turner | mine safety and health inspector |
| James B. Pfeifer, P.E. | civil engineer |
| Stanley T. Schaeffer, Jr. | civil engineer |

APPENDIX B

Elevation view of cut through berm leading to pit



Elevation View of Cut Through Berm Leading to Pit
Harsh Creek (HC-10) Cut (a.k.a. Old No. 16 Cut)
(Looking South)

Note:
All distances approximate.

FOR REFERENCE ONLY
NOT TO SCALE

Figure 1



MNM Fatal Accident
Investigation
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Mosaic Phosphate Co.
Fort Green Mine
Mulberry, FL
Mine I.D. 08-00768

APPENDIX C

Diagram of failure scenario

Note:

The configuration shown below (Pre-failure condition) is estimated based on measurements taken in the field during the investigation. All distances are approximate.

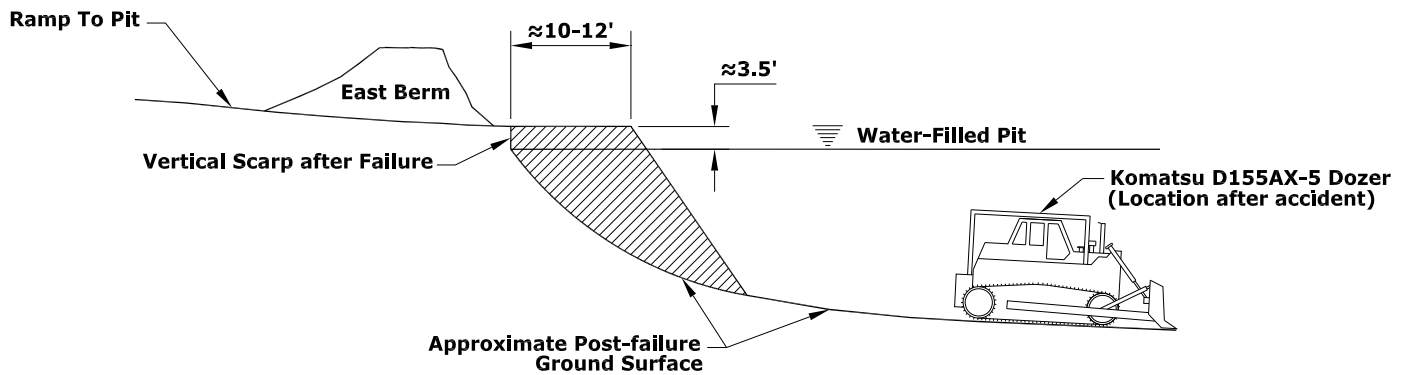


Diagram of Failure Scenario
Harsh Creek (HC-10) Cut (a.k.a. Old No. 16 Cut)
(Sectional View - Looking East)

Legend:

 Estimate of Pre-failure Location of ramp.

FOR REFERENCE ONLY
NOT TO SCALE

Figure 2



**MNM Fatal Accident
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